

THE SYSTEMATIC POSITION OF PLAUMANNIOLA COSTA LIMA (COLEOPTERA: SCYDMAENIDAE)

BY JOHN F. LAWRENCE¹
AND HANS REICHARDT^{2, 3}

The genus *Plaumanniola* was proposed for the Brazilian species *P. sanctaecatharinae* and was made the type of a distinct subfamily of Ptinidae, the Plaumanniolinae (Costa Lima, 1962). Because of the peculiar structure of the head and antennae, it was assumed that the beetle lives with ants, and several references were made in the description to the similarities between this species and the Australian myrmecophile *Ectrephes calvatus* Mjöberg. In connection with the preparation of a forthcoming paper on myrmecophilous Ptinidae, the authors had the opportunity of obtaining for study a male paratype of *Plaumanniola sanctaecatharinae*. A careful examination of the specimen confirmed our suspicions that the species is not a ptinid at all, but rather belongs to the family Scydmaenidae.

The following characters of *Plaumanniola* clearly indicate its inclusion within the Scydmaenidae: 1) 3rd segment of maxillary palp enlarged, the terminal segment small, acuminate, and partly buried in the apex of the 3rd (fig. 1). 2) Procoxal cavities open behind, the coxae conical and projecting, contiguous, and the trochantins hidden. 3) Mesepisternum elevated above the plane of the metasternum. 4) Metacoxae well separated but not distant. 5) Hindwing with reduced venation, the anal lobe (Forbes, 1926) and the medio-cubital loop (Crowson, 1955) absent. 6) Abdomen with 6 freely-articulated visible sternites; tergites completely covered by elytra, the first 4 membranous and the last 2 sclerotized. 7) Aedeagus similar to *Stenichnus collaris* Müll. (Sharp and Muir, 1912:508, fig. 56) with a short, thick median lobe, which is curved ventrad at the base to form a narrow, flat process, narrow lateral lobes attached dorsally, and a complex internal sac bearing sclerotized plates.

The wing venation is undoubtedly staphylinoid (Crowson, 1955:12, fig. 6) with the medio-cubital loop entirely absent. Within the Staphylininoidea, the Pselaphidae and Staphylinidae never have more than 2 tergites membranous, while the Leptinidae and Anisotomidae lack the procoxal characters. The hidden trochantins and the structure of the abdomen separate *Plaumanniola* from the Silphidae and Scaphidiidae. The raised mesepisternum and the structure of the maxillary palp appear to be found only in the Scydmaenidae. The general structure of the aedeagus is not uncommon among staphylinoids, but the dorsal articulation of the lateral lobes is unique to the Scydmaenidae.

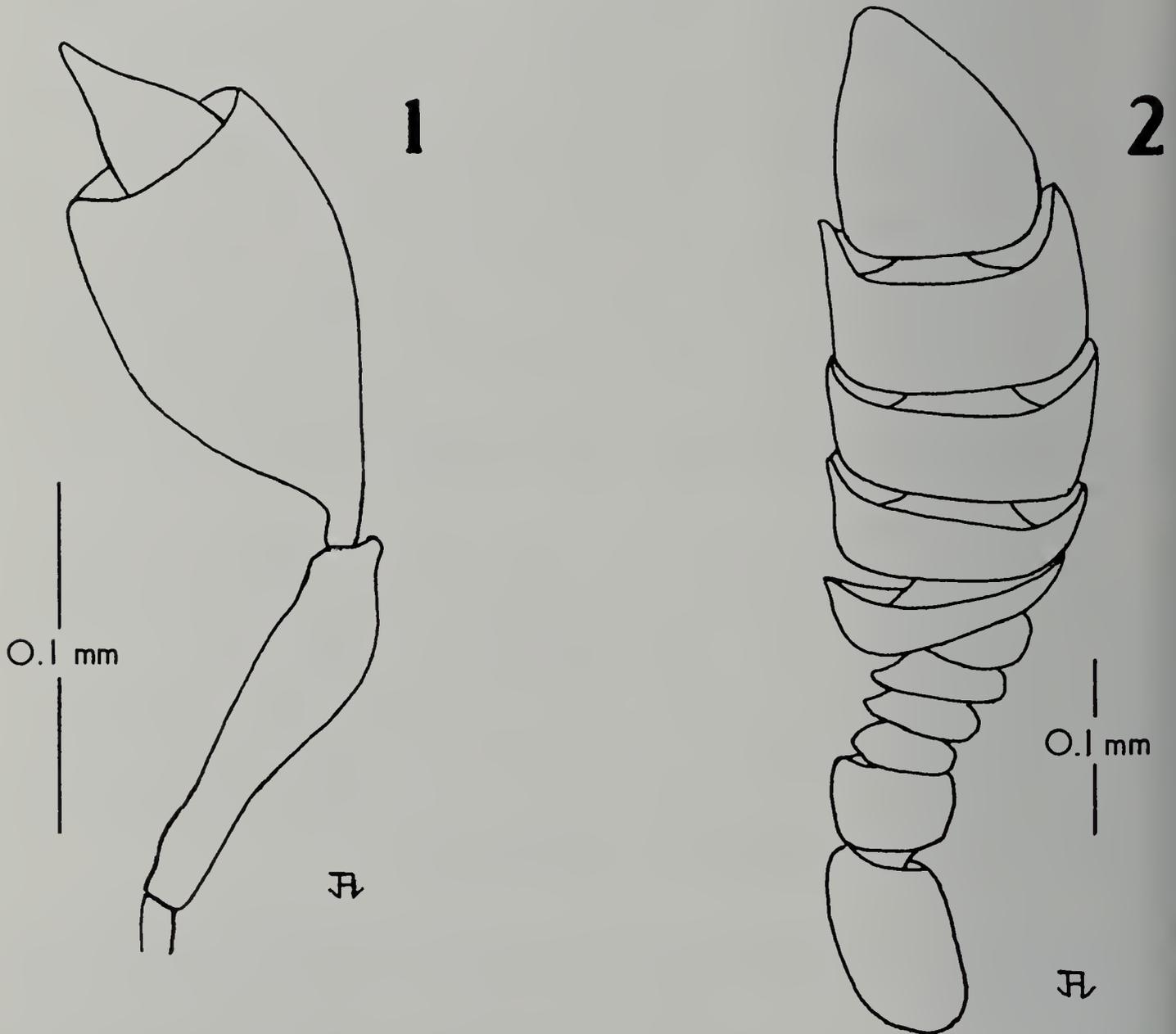
¹ Museum of Comparative Zoology, Harvard University, Cambridge, Mass.

² Departamento de Zoologia, Secretaria da Agricultura, São Paulo, Brazil; presently at Harvard University.

³ Acknowledgements. We gratefully acknowledge the assistance of M. A. Vulcano, Departamento de Zoologia, São Paulo, Brazil, for the loan of the paratype specimen. (This specimen was bought by Hans Reichardt from Fritz Plaumann and deposited in the collection at São Paulo.)

Aside from the peculiar structure of the head and pronotum, both of which are broad and flattened, the most aberrant character of *Plaumanniola* is the structure of the antenna, which is enlarged apically forming a 5-segmented club (fig. 2). Even this, however, is not without precedent among the Scydmaenidae. Crowson (1955:37) mentions that *Cephennium* and its allies have a distinctly anisotomid-like club, while several scydmaenids figured by Schaufuss (1866), Sharp (1897), and Reitter (1909) have the last 2 to 5 antennal segments variously enlarged. The sensory vesicles present in the antenna of *Eutheia* (Crowson, 1955:30, 37, fig. 30) could not be seen in the specimen of *Plaumanniola*.

The position of the genus within the Scydmaenidae is somewhat more difficult to ascertain, since the family is badly in need of revision. According to the characters used by Casey (1897), Arnett (1961), and Marsh (1962), for the North American fauna, *Plaumanniola* may be tentatively placed near the tribe Euconnini, sharing with its members the following characters: 1) 4th segment of maxillary palp acuminate. 2) Antennal insertions fairly widely separated. 3) Neck short and abruptly con-



FIGURES 1-2, *Plaumanniola sanctaecatharinae* Costa Lima. 1—Last 3 segments of maxillary palp. 2—Antenna.

stricted. 4) Eyes placed slightly anterad of middle of head. 5) Prosternum deeply emarginate before the coxae. 6) Mesosternum distinctly carinate. 7) Hind coxae distinctly separated, transverse, attaining the sides of the body. 8) Scutellum not visible.

The tribe Euconnini is fairly well represented in the Neotropical region, with the majority of species, according to Blackwelder (1944), belonging to the genus *Euconnus*. Because of the specialized character of *Plaumanniola* and the uncertain nature of the present scydmaenid classification, we think that the genus should remain in a separate tribe of the Scydmaeninae, the Plaumanniolini, which might be placed near the Euconnini and the Scydmaenini. A more detailed treatment of the generic relationships must await a thorough revision of the family.

The supposition that *Plaumanniola sanctaecatharinae* may be myrmecophilous is not supported by evidence at present, since Costa Lima's specimens were collected by Fritz Plaumann among dry leaves on the forest floor. It is not improbable, however, that the species lives in association with ants, since myrmecophily appears to be fairly common among the Scydmaenidae. Wasmann (1894) lists 32 species of scydmaenids which have been collected with various ant species. It is hoped that a further investigation of this remarkable species will shed light both on its taxonomic relationships and on its habits.

LITERATURE CITED

ARNETT, R. H.

1961. The Beetles of the United States. Part II. Fasc. 23. Catholic Univ. Amer. Press, Washington, D.C., pp. 357-362, 1 fig.

BLACKWELDER, R. E.

1944. Checklist of the coleopterous insects of Mexico, Central America, the West Indies, and South America. Bull. U. S. Nat. Mus. 185, xii + 188 pp.

CASEY, T. L.

1897. Coleopterological notices. VII. Ann. New York Acad. Sci. 9:285-684.

COSTA LIMA, A. DA

1962. Micro-coleoptero representante da nova subfamilia Plaumanniolinae (Col., Ptinidae). Rev. Brasil. Biol. 22(4):413-418, 4 figs.

CROWSON, R. A.

1955. The Natural Classification of the Families of Coleoptera. N. Lloyd, London. 187 pp., 212 figs.

FORBES, W. T. M.

1926. The wing folding patterns of the Coleoptera. Jour. New York Ent. Soc. 34:42-68, 91-139, pls. 7-18.

MARSH, G. A.

1957. Family Scydmaenidae. In Melville H. Hatch, The Beetles of the Pacific Northwest. Part II. Staphyliniformia. Univ. Wash. Publ. Biol. 16, ix + 348 pp., 37 pls. (pp. 271-280, pl. 36, figs. 3-7).

REITTER, E.

1909. Fauna Germanica. Die Käfer des deutschen Reiches. Band II. Lutz, Stuttgart. 392 pp., pls. 41-80.

SCHAUFUSS, L. W.

1866. Monographie der Scydmaeniden Central- und Südamerika's Verh. Kaisl. Leop.-Carol. deut. Akad. Naturforsch. 33(6). 103 pp., 4 pls.

SHARP, D.

1897. Fam. Scydmaenidae. In F. D. Godman and O. Salvin, edit. Biologia Centrali-Americana. Insecta. Coleoptera. Vol 2, Part 1 (1897-1905). Godman and Salvin, London. xii + 717 pp., 19 pls. (pp. 46-71, pl. 2).

SHARP, D. and F. MUIR

1912. The comparative anatomy of the male genital tube in Coleoptera. Trans. Ent. Soc. London 1912: 477-642, pls. 42-78.

WASMANN, E.

1894. Kritisches Verzeichniss der myrmekophilen und termitophilen Arthropoden. F. L. Dames, Berlin. xiii + 231 pp.



LITERATURE NOTICE

A CASE OF MULLERIAN MIMICRY OF SOUND. By C. Lane and M. Rothschild. Proc. Ent. Soc. London (A) 40(10-12):156-158, 4 pls. 1965.—Stridulation and behaviour displayed by *Necrophorus investigator* (Silphidae) is described and compared with that exhibited by the bumble bee when disturbed in a semi-torpid state. It is suggested that this display of mimicry by the beetle is directed against crepuscular ground predators as well as birds. A short but very interesting paper.

THE TYPES OF ADAPTATIONS OF LEGS' STRUCTURE OF DESERT DARKLING BEETLES (COLEOPTERA, TENEBRIONIDAE). [In Russian.] By G. S. Medvedev. Ent. Obozr. 44(4):803-826, 29 figs. 1965.—Another article by Medvedev on morphological adaptations of tenebrionids. He had previously written on the mouthparts.

ESTUDIO MORFOLOGICO DE DOS COLEOPTEROS ACUATICOS CHILENOS: RHANTHUS SIGNATUS (DYTISCIDAE) Y TROPISTERNUS SETIGER (HYDROPHILIDAE). By M. Etcheverry and W. Brunner. Publ. Centro. Est. Ent. (Santiago de Chile) No. 7:1-28, 68 figs. 1965.—The text contains general information on the habits of both families, a list of Chilean species of both families, and only two pages of morphological descriptions of the two species. Most of the article is made up of illustrations.

MORE NEW GALERUCINE BEETLES WITH EXCISED MIDDLE TIBIAE IN THE MALE and A REVIEW OF THE BEETLES OF THE GENUS NEOBROTICA AND SOME CLOSELY RELATED GENERA. By D. H. Blake. Proc. U. S. Nat. Mus. 118:233-266, 35 figs., and 267-372, 104 figs., respectively. 1966.—A key to genera treated in each paper, a key to the North and Central American species of *Neobrotica* in the second, and descriptions and illustrations of both new and old species make up these two papers.